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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,922	08/04/2003	Moungi G. Bawendi	14952.0274 C1 D1/MIT 8096	4946
27890	7590	01/11/2006	EXAMINER	
STEPTOE & JOHNSON LLP 1330 CONNECTICUT AVENUE, N.W. WASHINGTON, DC 20036			TRAN, MY CHAU T	
			ART UNIT	PAPER NUMBER
			1639	

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/632,922	Applicant(s) BAWENDI ET AL.	
	Examiner MY-CHAU T. TRAN	Art Unit 1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 1011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 4-11, 14-25, 28-30 and 34-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 12, 13, 26, 27, 31-33 and 37-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/4/03 & 10/19/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Application and Claims Status

1. Applicant's response filed 10/11/2005 is acknowledged and entered.
2. Claims 1-39 are pending.

Election/Restrictions

3. Claims 4-11 and 14-25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10/11/2005.
4. Applicant has elected the following species for the elected invention (Claims 1-3, 12, 13, and 26-39) in the reply filed on 10/11/2005:
 - a. For the single specific species of compound/member, applicant elected polypeptide.
 - b. For the single specific species of support, applicant elected bead.
5. Claims 28-30 and 34-36 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to ***nonelected species***, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10/11/2005.

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6. Claims 1-3, 12, 13, 26, 27, 31-33, and 37-39 are under consideration in this Office Action.

Priority

7. This instant application is a DIV of 09/397,432 filed 09/17/1999, which is a CIP of 09/160,458 filed 09/24/1998. This instant application claims benefit to a provisional application of 60/101,096 filed 09/18/1998. This instant application is granted the benefit of priority for 09/397,432 under 35 U.S.C 120 and for 60/101,096 under 35 U.S.C 119(e). In addition, the instant elected invention (Claims 1-3, 12, 13, 26, 27, 31-33, and 37-39) is granted the benefit of priority for 09/160,458 under 35 U.S.C 120.

Information Disclosure Statement

8. The information disclosure statements (IDS) filed on 08/04/2003 and 10/19/2005 have been reviewed, and its references have been considered as noted on PTO-1449 forms. *Note: Applicant indicated that copies of the documents were submitted in the parent application(s).*

Specification

9. The disclosure is objected to because of the following informalities:

Although the instant specification does refer to the prior application, it did not include the status of the prior application. Applicant is reminded that the specific reference to the earlier filed application must be made in the instant application, i.e. ***a reference to the prior application must be inserted as the first sentence(s) of the specification of this application*** or in an

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application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). This should appear as the first sentence(s) of the specification following the title, preferably as a separate paragraph unless it appears in an application data sheet. For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. ***Also, the current status of all nonprovisional parent applications referenced should be included.*** The instant specification needs to include the status of the prior applications of 09/397,432 and 09/160,458, which are now a patent. In addition, the reference to the prior applications is not inserted as the first sentence(s) of the specification.

Appropriate correction is required.

10. Claims 1-3, 12, 13, 26, 27, 31-33, and 37-39 are under consideration in this Office Action.

11. *The instant invention recites a product (i.e. a library of compounds of claim 1, a chemical library of claim 26, or a library of polypeptides of claim 37).*

The structure of the product comprises a plurality of compound (i.e. compound of claim 1/member chemical of claim 26/polypeptide of claim 37), a support, and one or more population of semiconductor nanocrystals.

Each compound is bound to the support.

Each support is associated with one or more population of semiconductor nanocrystals. Additionally, the phrase "associated with" is define in the specification as items that are physically linked such as covalent binding or not physically linked such as method of recording association/correspondence (see instant specification pg. 12 line 25 thru pg. 13, line 2). Thus, this limitation is broadly interpreted to encompass a variety of attachments such as direct and indirect attachment between the instant claimed support and the instant claimed nanocrystal.

Each population of semiconductor nanocrystals has a distinct characteristic spectral emission. This limitation is interpreted as a functional property of the instant claimed nanocrystal.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 1-3, 12, 13, 26, 27, 31-33, and 37-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Zarling et al. (US Patent 5,674,698).

Zarling et al. disclose methods, compositions, and apparatus for the detection of analytes (see e.g. Abstract; col. 5, lines 23-39; col. 7, lines 38-64). In general, the composition comprises a probe (refers to instant claimed compound of claim 1/member chemicals of claim 26), a label, and a solid substrate (refers to instant claimed support)(see e.g. col. 12, line 60 thru col. 13, line 2; col. 22, lines 55-60; col. 23, lines 30-52; col. 24, lines 6-17; col. 24, line 60 thru col. 25, line 29). The probe is immobilized on the solid substrate (refers to instant claimed limitation of ‘each compound is bound to the support’)(see e.g. col. 23, lines 30-52; col. 24, lines 6-17; col. 24, line 60 thru col. 25, line 29). The probe includes antibody, which is define as one or more polypeptides (refers to instant claimed polypeptide of claim 37, and instant claims 13 and 27)(see e.g. col. 10, lines 33-50; col. 11, lines 25-27; col. 12, line 65 thru col. 13, line 2; col. 23, lines 30-52). The solid substrate includes bead (refers to instant claimed support and instant claims 12 and 33)(see e.g. col. 23, lines 30-52; col. 24, line 60 thru col. 25, line 29). The label is the up-

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converting phosphor particles (refers to instant claimed nanocrystals) in which each up-converting phosphor particle comprises an absorber (refers to instant claimed a shell layer overcoating the core) and the emitting center (refers to instant claimed core) such that the combination of absorber and emitter produces emission spectra (refers to instant claimed functional property of the nanocrystal, and instant claims 2, 3, 31, 32, 38 and 39)(see e.g. col. 13, lines 43-47; col. 14, lines 17-50; col. 16, lines 19-48; col. 24, lines 18-45). The label is directly or indirectly attached to the probe (refers to claimed limitation of '*each support is associated with one or more population of semiconductor nanocrystals*')(see e.g. col. 19, line 62 thru col. 20, line 16; col. 23, lines 30-52). Additionally, Zarling et al. disclose a plurality of the composition (refers to instant claimed library)(see e.g. col. 24, line 60 thru col. 25, line 29). Therefore, the compositions of Zarling et al. anticipate the presently claimed product.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 1-3, 12, 13, 26, 27, 31-33, and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dower et al. (US Patent 5,770,358) in view of Weiss et al. (US Patent 5,990,479).

Dower et al. disclose the libraries of tagged synthetic oligomer and the method of synthesizing the libraries (see e.g. Abstract; col. 1, lines 11-17; col. 3, lines 13-28; col. 3, lines 57-63). The library comprises oligomers bound to a solid supports and labeled with identifier tags (see e.g. col. 3, lines 13-28; col. 3, lines 57-63; col. 4, line 66 thru col. 5, line 4). The oligomers include polypeptides (refers to instant claimed compound of claim 1/member chemicals of claim 26/polypeptide of claim 37, and instant claims 13 and 27)(see e.g. col. 6, lines 27-52; col. 8, line 48 thru col. 9, line 14). The solid supports include bead (refers to instant claimed support and instant claims 12 and 33)(see e.g. col. 8, lines 21-30; col. 10, lines 42-52; col. 11, lines 22-45). The identifier tags include fluorescent compounds (see e.g. col. 3, lines 57-63; col. 5, lines 50-67; col. 15, lines 10-35) and are either attached to the oligomer or the solid support (see e.g. col. 11, lines 49-63; col. 16, lines 31-39).

The libraries of Dower et al. differ from the presently claimed invention by failing to include semiconductor nanocrystal labels.

Weiss et al. disclose semiconductor nanocrystal probes and the method of making and using the probes (see e.g. Abstract; col. 2, lines 18-37; col. 3, lines 1-28). The semiconductor nanocrystal probes comprise semiconductor nanocrystals, probe, and linking agent (see e.g. col. 2, lines 18-37; col. 3, line 66 thru col. 4, line 20). The probe includes affinity molecules such as

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peptides (see e.g. col. 6, lines 63-67). The semiconductor nanocrystals comprise of core/shell configuration and emits light within a narrow wavelength band (see e.g. col. 6, lines 18-47).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include semiconductor nanocrystal labels as taught by Weiss et al. in the libraries of Dower et al. One of ordinary skill in the art would have been motivated to include semiconductor nanocrystal labels in the libraries of Dower et al. for the advantage of providing a stable probe material for biological applications having a wide absorption band and capable of exhibiting either a detectable change in absorption or of emitting radiation in a narrow wavelength band (Weiss: col. 2, lines 3-7) since both Dower et al. and Weiss et al. disclose a labeled probe wherein the probe is peptide (Dower: col. 4, line 66 thru col. 5, line 4; col. 6, lines 27-52; Weiss: col. 2, lines 38-42; col. 6, lines 63-67). Furthermore, one of ordinary skill in the art would have a reasonable expectation of success in the combination of Dower et al. and Weiss et al. because the type of labeled use would be a choice of experimental design and is considered within the purview of the cited prior art.

Thus, the combine teachings of Dower et al. and Weiss et al. do render the product of the instant claims *prima facie* obvious.

Double Patenting

17. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29

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USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

18. Claims 1, 3, 12, 13, 26, 27, 32, 33, 37, and 39 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, and 10-12 of U.S.

Patent No. 6,326,144 B1 (refers to as Bawendi's '144) in view of Dower et al. (US Patent 5,770,358).

The claims of Bawendi's '144 disclose a composition. The structure of the composition comprises a compound and semiconductor nanocrystal that have a characteristic spectra emission (see claims 1 and 2). The compound includes biological compound such as peptide (see claims 10-12).

The composition of Bawendi's '144 differs from the presently claimed invention by failing to disclose the solid support bound to the compound and a library of the compounds, i.e. a plurality of the compositions.

Dower et al. disclose the libraries of tagged synthetic oligomer and the method of synthesizing the libraries (see e.g. Abstract; col. 1, lines 11-17; col. 3, lines 13-28; col. 3, lines 57-63). The library comprises oligomers bound to a solid supports and labeled with identifier tags (see e.g. col. 3, lines 13-28; col. 3, lines 57-63; col. 4, line 66 thru col. 5, line 4). The oligomers include polypeptides (refers to instant claimed compound of claim 1/member

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chemicals of claim 26/polypeptide of claim 37, and instant claims 13 and 27)(see e.g. col. 6, lines 27-52; col. 8, line 48 thru col. 9, line 14). The solid supports include bead (refers to instant claimed support and instant claims 12 and 33)(see e.g. col. 8, lines 21-30; col. 10, lines 42-52; col. 11, lines 22-45). The identifier tags include fluorescent compounds (see e.g. col. 3, lines 57-63; col. 5, lines 50-67; col. 15, lines 10-35) and are either attached to the oligomer or the solid support (see e.g. col. 11, lines 49-63; col. 16, lines 31-39).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to disclose the solid support bound to the compound and a library of the compounds, i.e. a plurality of the compositions, as taught by Dower et al. in the composition of Bawendi's '144. One of ordinary skill in the art would have been motivated to disclose the solid support bound to the compound and a library of the compounds, i.e. a plurality of the compositions, in the composition of Bawendi's '144 wherein the bead provides the advantage of greater surface area for a reaction and the ability to screen a multiplicity of chemical compounds simultaneously and the library of compounds provides the advantage of effectively screening a multiplicity of chemical for structure-activity relationship since both Bawendi's '144 and Dower et al. disclose a labeled probe wherein the probe is peptide (Bawendi's '144: claims 1, 2, and 10-12; Dower: col. 4, line 66 thru col. 5, line 4; col. 6, lines 27-52). Furthermore, one of ordinary skill in the art would have a reasonable expectation of success in the combination of Bawendi's '144 and Dower et al. because Dower et al. disclose the success by example of bound labeled peptide probes on beads (Dower: col. 23, line 60 thru col. 26, line 24).

Therefore, the combine teachings of Bawendi's '144 and Dower et al. do render the product of the instant claims *prima facie* obvious.

19. Claims 1-3, 12, 13, 26, 27, 31-33, and 37-39 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 6, 7, 8, 9, and 16-20 of U.S. Patent No. 6,617,583 B1 (refers to as Bawendi's '583) in view of Dower et al. (US Patent 5,770,358).

The claims of Bawendi's '583 disclose a composition. The structure of the composition comprises support and semiconductor nanocrystal bound to the support (see claims 1, 7, and 16). The semiconductor nanocrystal have a distinguishable spectra emission and comprise a semiconductor nanocrystal and an overcoating at a surface of the nanocrystal (see claims 1-4, 6, 7, 8, 9, and 16-20).

The composition of Bawendi's '583 differs from the presently claimed invention by failing to disclose a compound bound to the solid support and a library of the compounds, i.e. a plurality of the compositions.

Dower et al. disclose the libraries of tagged synthetic oligomer and the method of synthesizing the libraries (see e.g. Abstract; col. 1, lines 11-17; col. 3, lines 13-28; col. 3, lines 57-63). The library comprises oligomers bound to a solid supports and labeled with identifier tags (see e.g. col. 3, lines 13-28; col. 3, lines 57-63; col. 4, line 66 thru col. 5, line 4). The oligomers include polypeptides (refers to instant claimed compound of claim 1/member chemicals of claim 26/polypeptide of claim 37, and instant claims 13 and 27)(see e.g. col. 6, lines 27-52; col. 8, line 48 thru col. 9, line 14). The solid supports include bead (refers to instant claimed support and instant claims 12 and 33)(see e.g. col. 8, lines 21-30; col. 10, lines 42-52; col. 11, lines 22-45). The identifier tags include fluorescent compounds (see e.g. col. 3, lines 57-

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63; col. 5, lines 50-67; col. 15, lines 10-35) and are either attached to the oligomer or the solid support (see e.g. col. 11, lines 49-63; col. 16, lines 31-39).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to disclose a compound bound to the solid support and a library of the compounds, i.e. a plurality of the compositions as taught by Dower et al. in the composition of Bawendi's '583. One of ordinary skill in the art would have been motivated to disclose a compound bound to the solid support and a library of the compounds, i.e. a plurality of the compositions in the composition of Bawendi's '583 for the advantage of providing the ability to screen a multiplicity of chemical compounds simultaneously since both Bawendi's '583 and Dower et al. disclose labeled solid support (Bawendi's '583: claims 1, 7, and 16; Dower: col. 11, lines 49-63; col. 16, lines 31-39). Furthermore, one of ordinary skill in the art would have a reasonable expectation of success in the combination of Bawendi's '583 and Dower et al. because Dower et al. disclose the success by example of bound labeled peptide probes on beads (Dower: col. 23, line 60 thru col. 26, line 24).

Thus/Therefore, the combine teachings of Bawendi's '583 and Dower et al. do render the product of the instant claims *prima facie* obvious.

Conclusion

20. No claims allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to My-Chau T. Tran whose telephone number is 571-272-0810.

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The examiner can normally be reached on Monday: 8:00-2:30; Tuesday-Thursday: 7:30-5:00; Friday: 8:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew J. Wang can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mct
January 9, 2006


PADMASHRI PONNALURI
PRIMARY EXAMINER